ER16-GTX32-04

The ER16-GTX32-04 is a copper-based 1000Base-T Gigabit Ethernet module for the Enterasys X-Pedition platform. The ER16-GTX32-04 provides four ports of 1000Base-T switched and routed connectivity through Category 5 RJ45 connectors and is ideal for high-speed collapsed backbones and server-farm connections. The ER16-GTX32-04 delivers full-function Layer-2, Layer-3, and Layer-4 switching and routing.

SPECIFICATIONS

Ports

4 1000Base-T Ports

ASIC Type

T-Series

Network Interface

RJ-45 100m Cat5 UTP Cabling per ANSI/TIA/EIA-568-A

Number of Flows/Routes

Layer-2 Entries = 512,000 (memory size = 64 MB)
Layer-3 Entries = 512,000 (memory size = 32 MB)

Switch Method

Address-based and Flow-based.

Physical Dimensions

Size: 45.16 cm H x 2.54 W x 35.24 D (17.78 in. H x 1 W x 13.88 D)
Weight 2.3 kg (5.0 lbs)

Power Consumption

BTU/hr = 362.6

AC Volt Amps = 107.31

Temperature

Operating: 41° to 104° F (5° to 40° C)
Storage: -22° to 164° F (-30° to 73° C)

Humidity

15% to 90% (non-condensing)

CONNECTIVITY GUIDELINES
Table 1   Recommended Cable Types and Specifications

Cable	Type	Max. Length	Connector
100Base-TX	Cat. 5 100-ohm UTP	100 m (328 ft)	RJ-45

LEDs
Table 2   LED Indicators

LED	Condition	Status
Online	On (Green)	The module is online and ready to receive, process, and send packets (if configured to do so).
Offline	On (Amber)	The module is offline (powered down) and ready to hotswap.
Per-Port Transmit	Green	The port transmitted a packet. The OCMAC controls this LED.
	Orange	The port transmitted a flow-control packet. The OCMAC controls this LED.
Per-Port Receive	Green	The port received a packet. The OCMAC controls this LED.
	Orange	The port received a flow-control packet. The OCMAC controls this LED.
Per-Port Link	Green	The port hardware detected a cable plugged into the port and established a good link.
	Off	No link exists from the port.
Per-Port Quality	Green	Autonegotiation completed successfully and the phy is attempting to establish a link. This LED remains green while the link operates with good signal-to-noise ratio.
	Fast blink	Low signal-to-noise ratio, close to data errors.
	Slow blink	Receive bit errors detected.
	Off	Autonegotiation is in progress or the phy cannot receive packet data.

Options Available

The ER16-GTX32-04 provides switching and routing on hardware, thereby eliminating the performance bottleneck caused by a single processor. The module supports application switching (i.e., Network Address Translation, Server Load Balancing, Per-Flow Rate Limiting, Access Control Lists, and full RMON/RMON 2) and extra features like the Local Hardware Routing Table, Port Rate Limiting, Aggregate Rate Limiting, and Jumbo Frames that are essential for Application Service Providers, Multi-Dwelling Unit (MDU) Service Providers, and Large Enterprise Networks.

The ER16-GTX32-04 offers ten times the bandwidth available through the existing Category 5 infrastructure and interoperates with all existing X-Pedition Router modules. This allows network managers to leverage their existing cabling infrastructure and equipment without an extensive upgrade.

INSTALLING THE MODULE

ELECTRICAL HAZARD: Only qualified personnel should perform installation procedures.

Handling the Module

CAUTION: The ER16-GTX32-04 is designed for slots 1-7 or 9-16 only, and is easily damaged by electrostatic discharge.

To prevent electrostatic damage, observe the following guidelines:

- Do not remove the module from its packaging until you are ready to install it.
- Do not touch any of the module's pins, connectors or components.
- Hold the module only by its edges or front panel.
- Wear an anti-static wristband connected to a suitable earth ground whenever handling the module.
- Store or transport this module only in appropriate anti-static packaging.

Equipment Checklist

After unpacking the ER16-GTX32-04, check the contents of the box to be sure you received the following items:

- One ER16-GTX32-04 module in anti-static bag
- One disposable anti-static wristband

Tools

This installation requires the following tools:

Anti-static wristband   **Flathead screwdriver**
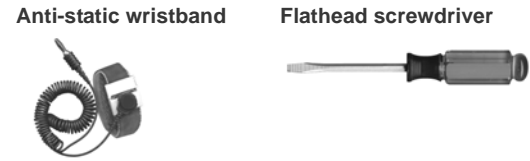
Preliminary Setup

Firmware Image Requirements

Version 9.0.0.0 or later.

Default Module Settings

The default mode for each port on the ER16 is:

Full duplex/ 1000 mbs/ autonegotiation on

To view the current mode for a particular port, enter the following (where **x** is the chassis slot that contains the line card and **y** is a specific port number on the card):

XP# port show port status gi.x.y

CLI Setup

Enter the following commands at the CLI before implementing any configurations.

1. **Enable** —> **Configure** —> **<Enter>**.
2. Once you reach the configuration prompt, you can configure the ER16-GTX32-04 using CLI commands as described in the X-Pedition CLI manual. Enter the **?** character to view the options available to you in configuration mode.

Connector Pin Assignments

The connector pins are assigned as follows:

Table 3   RJ45 Connector Pin Assignments

Pin	Connection
1	TRD0 + Diff Output
2	TRD0 - Diff Output
3	TRD1 + Diff Output
4	TRD2 + Diff Output
5	TRD2 - Diff Output
6	TRD1 - Diff Output
7	TRD3 + Diff Output
8	TRD3 - Diff Output

Hotswap

You may install this module into a live system without powering off the device. However, do not remove an active module from a live system except under the following conditions:

- Press the **Hotswap button**. The **Online LED** will turn **off** and the **Offline LED** will turn **on**.
- **Remove the module**.

OR...

- **Enter the following** from the CLI and click enter: **Enable -> System -> Hotswap -> Out -> Slot -> #**. The **Online LED** will turn **off** and the **Offline LED** will turn **on**.
- **Remove the module**.

Instructions

> ⚠ **CAUTION:** Before performing any upgrade or installation, ensure that you are properly "grounded" to avoid electrostatic discharge.
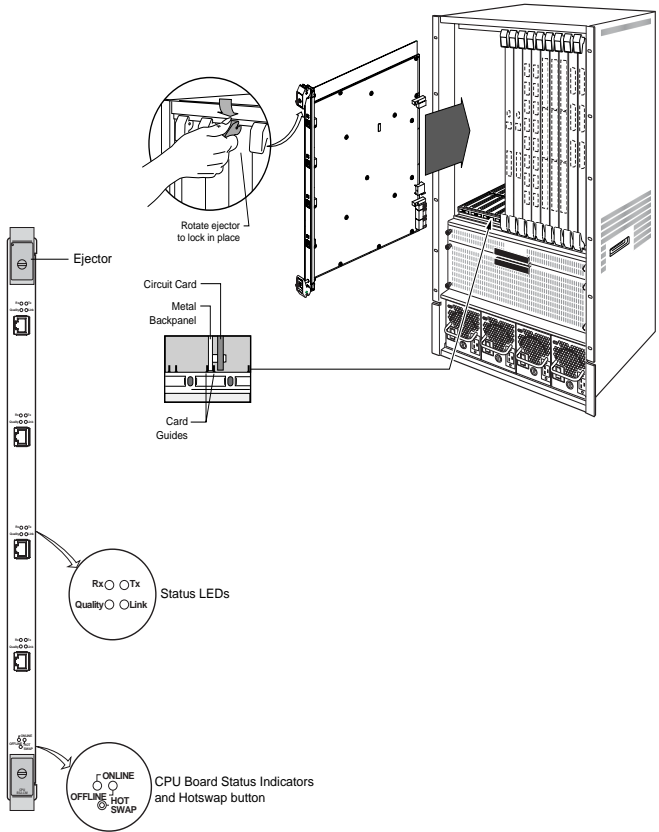
1. If a coverplate is installed in the slot where you will insert the module, **remove the coverplate**: loosen the screws on the ejectors until the screws pop out, then open the ejectors and pull out the plate.
2. **Open the ejectors** at the top and bottom of the ER16-GTX32-04.
3. **Align the metal backpanel of the module with the card guides** at the top and the bottom of the slot opening, as shown in Figure 1.

> 🔲 **NOTE:** Make sure that the metal backpanel of the module—not the circuit card—is between the card guides. Check both the upper and lower tracks.

4. **Slide the module all the way into the slot**, firmly but gently pressing to ensure that the pins on the back of the ER16-GTX32-04 are completely seated in the backplane.
5. To lock the ER16-GTX32-04 into the slot, **close the ejectors**. Using a flathead screwdriver, tighten the screw on each ejector.

Figure 1   Install the ER16-GTX32-04

Rotate ejector to lock in place

Ejector

Circuit Card

Metal Backpanel

Card Guides

Rx○ ○Tx
Quality○ ○Link   Status LEDs

○ONLINE
○ ○
OFFLINE ○ ○HOT SWAP   CPU Board Status Indicators and Hotswap button

TROUBLESHOOTING

Proper Boot Sequence

- Offline LED lights at power-up.
- Port LEDs flicker briefly during system boot while ports initialize.
- Online LED turns on once module is active.

Common Errors

- The ER16 is not powered up.
- The module is not properly seated in the slot.
- Connectors on both ends of the cable are not properly engaged. The copper cable did not click into place or is not properly seated.
- Ensure that the attached device is configured to match the configuration mode of the ER16 module (e.g., autonegotiation enabled).

Helpful CLI Commands for Debugging

- **System show hardware**
- **System show version**
- **System show bootlog**

ADDITIONAL INFORMATION

For additional information about installing this module or to learn more about what capabilities are included in the firmware release you are using, visit the Enterasys Networks web site.

Getting Help

For additional support related to the Common CLI syntax or this document, contact Enterasys Networks using one of the following methods:

World Wide Web	http://www.enterasys.com/
Phone	(603) 332-9400
Internet mail	support@enterasys.com
FTP **Login** **Password**	ftp://ftp.enterasys.com anonymous your email address
To acquire the latest image for this product and any available release notes	http://www.enterasys.com/download
Additional documentation	http://www.enterasys.com/support/manuals

To send comments or suggestions concerning this document, contact the Technical Writing Department via the following email address:
TechWriting@enterasys.com
Please include the document Part Number in the email message.

Before contacting Enterasys Networks for technical support, have the following information ready:

- Your Enterasys Networks service contract number
- A description of the failure
- A description of any action(s) taken to resolve the problem (e.g., changing mode switches, rebooting the unit)
- The serial and revision numbers of all involved Enterasys Networks products in the network
- A description of your network environment (layout, cable type, etc.)
- Network load and frame size at the time of trouble (if known)

ER16-GTX32-04

Quick Start

Web Site: http://www.enterasys.com/

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